

Table 4-4. Gross alpha, gross beta, and tritium analysis results for NTS monitoring wells in 2004

Monitoring Location	Date Sampled	Gross $\alpha \pm$		Gross $\beta \pm$		$^3\text{H} \pm$	
		Uncertainty (MDC) ^(a)		Uncertainty (MDC)		Uncertainty (MDC)	
		(pCi/L) ^(b)		(pCi/L) ^(c)		(pCi/L) ^(d)	
HTH #1 (1935 ft bgs)	3/24/2004	NA ^(e)		NA		-2.4 \pm 13 (23)	
HTH #1 (1935 ft bgs) FD ^(f)	3/24/2004	NA		NA		-8.2 \pm 13 (22)	
HTH #1 (2040 ft bgs)	3/24/2004	NA		NA		8.6 \pm 14 (23)	
HTH #1 (2130 ft bgs)	3/24/2004	NA		NA		-6.0 \pm 13 (23)	
HTH #1 (2300 ft bgs)	3/24/2004	NA		NA		0.54 \pm 13 (22)	
J-11 WW	7/13/2004	4.0 \pm 1.9 (2.9)		21 \pm 2.2 (2.6)		-14 \pm 11 (20)	
PM-1	6/30/2004	-0.17 \pm 1.1 (1.9)		6.0 \pm 2.4 (3.6)		149 \pm 18 (20)	
PM-1 FD	6/30/2004	NA		NA		137 \pm 18 (20)	
SM-23-1 ^(g)	2/18/2004	3.5 \pm 1.2 (1.5)		5.0 \pm 1.0 (1.3)		-13 \pm 12 (22)	
U-19BH	3/23/2004	66 \pm 11 (1.3)		99 \pm 16 (2.6)		32 \pm 15 (23)	
U-19BH FD	3/23/2004	65 \pm 11 (1.3)		93 \pm 15 (2.7)		23 \pm 14 (22)	
UE-18R (1700 ft bgs)	3/23/2004	5.7 \pm 1.1 (0.55)		2.1 \pm 0.76 (1.1)		-4.8 \pm 13 (22)	
UE-18R (1700 ft bgs) FD	3/23/2004	NA ^(f)		NA		-15 \pm 12 (22)	
UE-18R (2130 ft bgs)	3/23/2004	12 \pm 2.1 (0.68)		3.0 \pm 0.86 (1.1)		2.4 \pm 13 (21)	
UE5 PW-1 ^(h)	5/4/2004	NA		NA		34 \pm 13 (20)	
UE5 PW-1 FD	5/4/2004	NA		NA		2.7 \pm 11 (19)	
UE5 PW-1	10/19/2004	NA		NA		0.18 \pm 13 (22)	
UE5 PW-1 FD	10/19/2004	NA		NA		-3.2 \pm 12 (21)	
UE5 PW-2 ^(h)	5/4/2004	NA		NA		11 \pm 12 (20)	
UE5 PW-2 FD	5/4/2004	NA		NA		30 \pm 12 (20)	
UE5 PW-2	10/19/2004	NA		NA		-7.1 \pm 12 (21)	
UE5 PW-2 FD	10/19/2004	NA		NA		-13 \pm 12 (21)	
UE5 PW-3 ^(h)	5/4/2004	NA		NA		-3.0 \pm 10 (17)	
UE5 PW-3 FD	5/4/2004	NA		NA		37 \pm 13 (20)	
UE5 PW-3	10/20/2004	NA		NA		-4.5 \pm 12 (21)	
UE5 PW-3 FD	10/20/2004	NA		NA		-8.2 \pm 12 (22)	
UE-7NS	4/7/2004	-0.21 \pm 0.74 (1.8)		3.1 \pm 1.3 (2.2)		144 \pm 19 (22)	
UE-7NS FD	4/7/2004	NA		NA		123 \pm 18 (23)	
WW A	2/3/2004	0.93 \pm 0.7 (1.2)		7.0 \pm 1.6 (1.7)		471 \pm 26 (20)	
WW A FD	2/3/2004	NA		NA		475 \pm 27 (20)	
WW 2	2/11/2004	6.3 \pm 1.6 (1.1)		6.6 \pm 1.9 (2.8)		-2.4 \pm 13 (22)	
WW 2 FD	2/11/2004	4.2 \pm 1.4 (1.5)		6.8 \pm 2.0 (3.0)		NA	

Green shaded results are considered detected (result is greater than the sample specific MDC)

Yellow shaded results are equal to or greater than the EPA-designated drinking water limits for each analyte

(a) ± 2 standard deviations

(b) The EPA established MCL in drinking water for gross alpha (α) is 15 pCi/L

(c) The EPA Level of Concern in drinking water for gross beta (β) is 50 pCi/L

(d) The EPA established MCL in drinking water for tritium (^3H) is 20,000 pCi/L

(e) NA = Specific analysis was not run on the sample

(f) FD = field duplicate sample

(g) Compliance well for Area 23 sewage lagoon

(h) Compliance well for validation of waste pit P03U a Area 5 RWMS (see [Section 9.1.6](#))

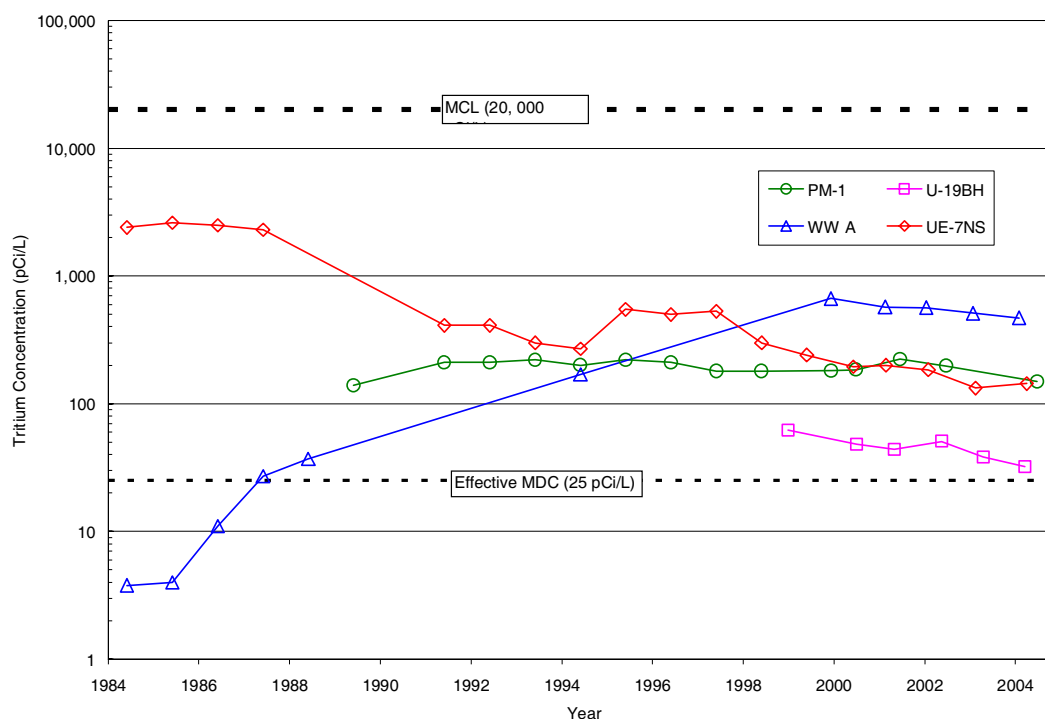


Figure 4-10. Concentrations of tritium in wells with a history of detectable levels

4.1.8 Results from NTS E Tunnel Ponds

Five primary basins were constructed to collect and hold water discharged from the E Tunnels in Area 12 where nuclear testing was conducted in the past (see Figure 4-3 and Figure 7-2). The water is perched groundwater that has percolated through fractures in the tunnel system. The Defense Threat Reduction Agency (DTRA) conducts monitoring of effluent waters from E Tunnel to determine if radionuclides and non-radiological contaminants exceed the allowable contaminant levels regulated under a state water pollution control permit (NEV 96021), which is issued to DTRA. During October, 2004, a DTRA contract company sampled the tunnel effluent near where water is discharged. During September, 2004, BN personnel sampled water from the pond influent (which at the time was flowing into Pond 5), and from Pond 5 itself. Sediment was also sampled from the basin of Pond 5. Effluent water was analyzed by DTRA for tritium, gross alpha, and gross beta (Table 4-5) and for 16 non-radiological contaminants and water quality parameters (DTRA, 2004). All other samples were analyzed by BN for tritium (water samples only), gamma-emitting radionuclides, uranium, plutonium, ^{90}Sr , and ^{241}Am (Table 4-6).

Table 4-5. Radiological results for E Tunnel Pond effluent pertaining to Water Pollution Control Permit NEV 96021

Parameter	Permissible Limit (pCi/L)	Average Measured Value (pCi/L)
Tritium	1,000,000	710,000
Gross Alpha	35.1	13.4
Gross Beta	101	72

Source: Water Pollution Control Permit NEV 96021 Quarterly Monitoring Report and Annual Summary Report for E Tunnel Waste Water Disposal System (DTRA, 2004)